ABSTRACT

A process for removing sulfur from a hydrocarbon employs a solid membrane. A feed stream is provided containing a feed liquid hydrocarbon and a feed sulfur species and a sweep stream is provided containing a sweep liquid hydrocarbon. A relatively large quantity of the feed stream is conveyed past one side of the solid membrane, while a relatively small quantity of the sweep stream is conveyed past the opposite side of the solid membrane. The feed sulfur species is transported in a permeate from the feed stream through the solid membrane to the sweep stream. As a result, the feed stream is converted to a relatively large quantity of a substantially sulfur-free reject stream containing a primary hydrocarbon product, while the sweep stream combines with the permeate to produce a relatively small quantity of a sulfur-enriched stream, which is amenable to further processing.